

### Remarks

Concerning items 5 onwards about novelty and nonobviousness, the following  
5 comments are made.

Fisher is cited against all the independent claims and some dependent claims. Fisher is concerned with an alternative marshalling process for TDMA PONs. It explains that the traditional window for new outstations to join in causes a waste of  
10 bandwidth and added delays. The suggested solution in Fisher is to transmit a sequence from a new outstation at a low level, below the usual noise threshold and use correlation at the base station to detect the sequence and its phase.

The present claim 1 is concerned with improving the cost, complexity and capacity of  
15 existing systems. The claim specifies a completely different solution having a number of distinctive features:

- a) "the downstream commands comprising a global command allowing none of the outstations (12) to transmit to the head end (11) for a pre-set period,"
- 20 b) "the global command being followed within the pre-set period by a further command to a selected outstation of the plurality of outstations (12) overriding said global command allowing the selected outstation to transmit upstream to the head end (11),"
- c) "wherein at least one of the respective communications paths  
25 comprises an optical communication path portion (14,17) and an electrical path portion (15,128,130,132).

These are significant for a number of reasons and are not shown or suggested in Fisher, as will now be explained in more detail.

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Feature a), global command to cause window:

Feature a) involving a global command is not the same as merely reserving a window of no upstream communications as in the passages of Fisher cited by the Examiner as showing this feature. In Fisher the window is reserved in each upstream frame. There is no command to indicate whether a frame has such a window or not.

- 5 The global command can be more efficient in terms of bandwidth since the head end can decide when to open the window to allow new stations to join in, and need not waste the bandwidth used by the window when the system is busy for example. The global command can also be used for other reasons, such as giving one outstation priority as will be explained further below with reference to feature b).

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- The closest Fisher seems to come is in saying that the downstream window "may be used instead to convey control messages to the outstations to control the marshalling process originated in the control message generator..." (lines 29-32 of col 3), but this does not suggest a command to open the window, nor the
- 15 advantages which arise. The Examiner also cites lines 23 and 24 of col 4 of Fisher which indicates the outstations will receive a recognizable frame word from which frame boundaries can be deduced. This is not a global command since as shown in fig 2 different outstations will pause at different times based on the frame. It is not even a command according to any reasonable interpretation, since the head end or
- 20 base station in Fisher does not choose whether to send it, it is merely a synchronisation signal sent continuously.

- The Examiner also cites lines 7-8 of col 4 of Fisher. However this passage merely says the base station listens to a new outstation during the window when there is no
- 25 other upstream signal. This says nothing about the base station sending a global command to cause the window.

**Feature b), command to selected outstation**

- 30 The Examiner asserts this is shown in Fisher by the box of figure 3 "receive transmit marshalling sequence instruction". However lines 43 and 44 of col 3 discussing

figure 3 explain that the base station does not know if an outstation is trying to attach and so "it will send out an instruction for any prospective outstation to transmit its sequence.". Hence there is no disclosure in Fisher of a command to a selected outstation. In Fisher any new outstation can override the window and transmit its  
5 sequence. The head end or outstation in Fisher has no control over the situation of several new stations trying to join. They will conflict and time and bandwidth will be wasted trying to resolve such conflict. According to the present invention the head end can control which outstation sends information.

10 From the combination of a) and b), the head end can override the usual sequence of transmissions from each outstation and allow one outstation to transmit out of sequence. This is useful for more than just allowing new outstations to join more efficiently than the traditional window. It can enable some outstations to send more urgently or achieve a higher burst rate, and so achieve better or more varied quality  
15 of service levels. None of this is shown or suggested by Fisher taken alone or in combination with other cited references. As Fisher proposes a completely different solution to the bandwidth wastage of the traditional window, there is no incentive in Fisher leading a skilled person towards the present invention. For these reasons claim 1 would not have been obvious.

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Feature c), optical and electrical paths

This is acknowledged by the Examiner not to be shown by Fisher, and no further comment is needed here.

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Other points

All the other claims have the same features or features corresponding to features a) and b) and so are allowable for the same reasons.

30 Regarding items 1 and 2, as this is a provisional rejection, it is proposed to address it later according to which claims are to be allowed.

Regarding items 3 and 4, appropriate amendments have been made to claim 21.  
Regarding claim 10, a non return star coupler would be expected not to interfere with  
communications from an outstation to the head station. Non return would not be  
expected to mean "one way" in this context. The specification indicates that "A non-  
5 return coupler combines upstream optical transmissions from the outstations on to  
the optical fibre path 14 to the head end 11 whilst preventing observation of a given  
upstream transmission of a respective given outstation from any other outstations."  
As there is no ambiguity here, no amendment is being made. If the rejection is  
maintained for any reason, more explanation would be appreciated about what  
10 exactly is unclear.

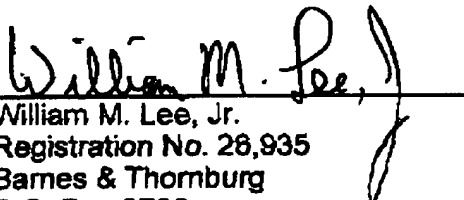
All the points raised by the Examiner have now been met and favorable  
reconsideration is requested.

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Respectfully submitted,

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